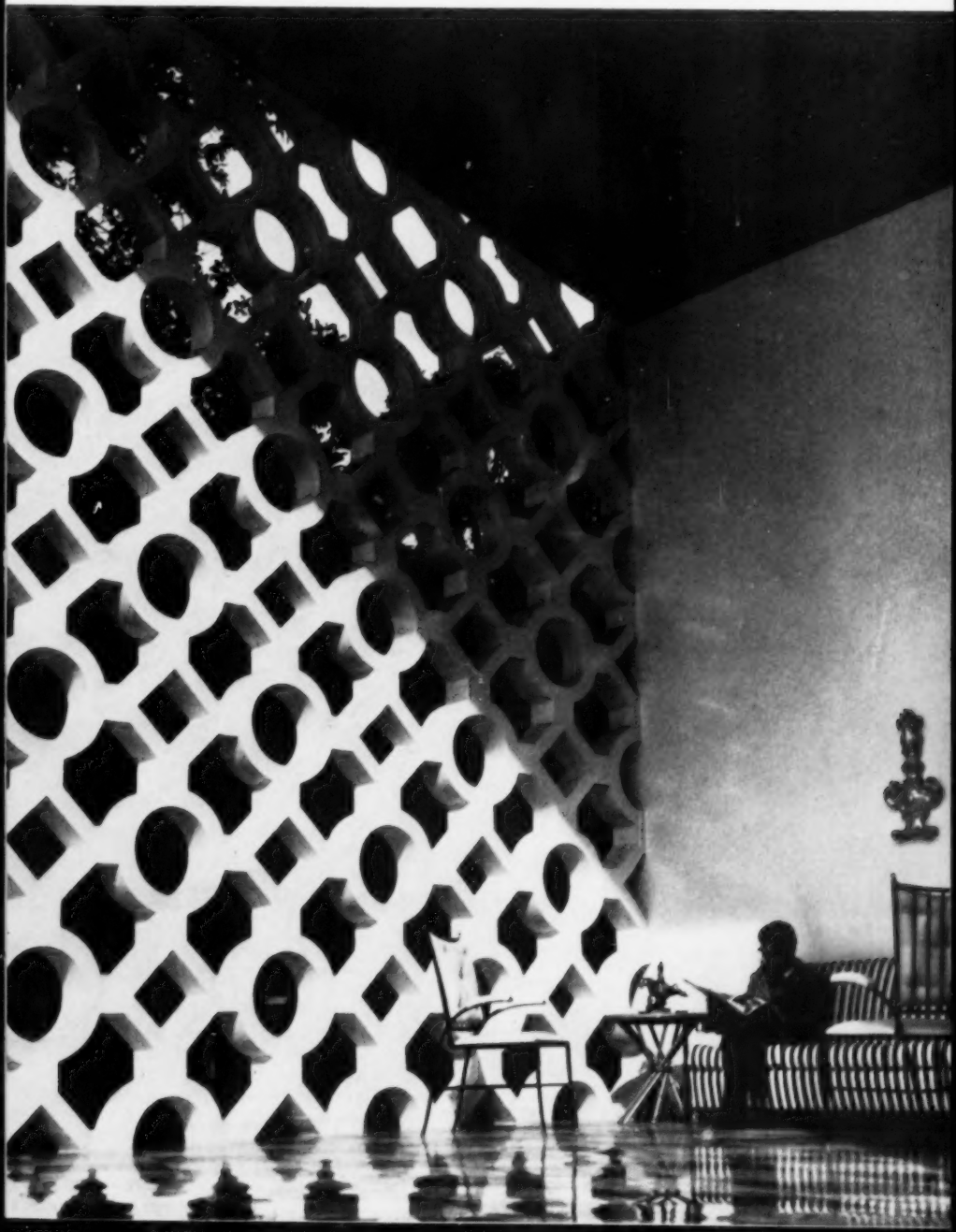
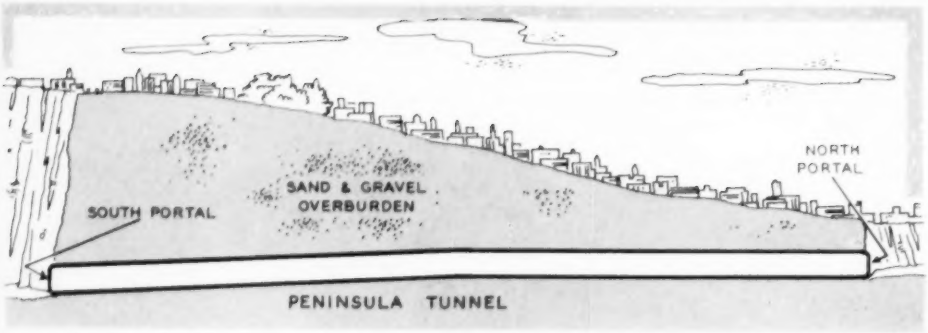
ACI News Letter

Vol. 26, No. 3 JOURNAL of the AMERICAN CONCRETE INSTITUTE November 1954





The Union Pacific Railroad's continuing modernization program called for maintenance and control of water leakage at its Peninsula Tunnel. Use of Prepakt methods and materials produced . . .

Top-Economy Tunnel Repair for UNION PACIFIC RAILROAD

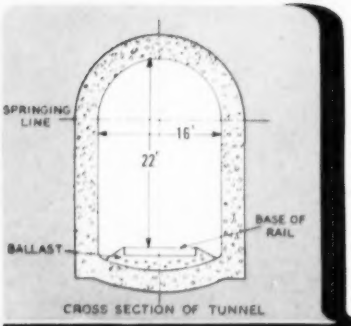
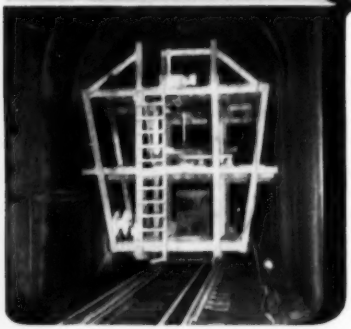


Diagram shows cross section of Union Pacific's Peninsula Tunnel which extends for 5,436 feet under Dana Street, Portland, Oregon.



Drill and grout repair work which stopped water leakage was done from work train of specially built jumbos. One is shown here in tunnel during operations.

Halting water flow through the concrete lining of a mile-long, 40-year old railroad tunnel could have been prohibitively expensive—*but for Intrusion-Prepakt it was a routine maintenance project.*

As a result, the Peninsula Tunnel of the Union Pacific Railroad in Portland, Oregon was repaired by Intrusion-Prepakt with speed, thoroughness and economy unmatched by any other method.

To halt extensive water drippage in this tunnel, Intrusion-Prepakt employed its highly effective "drill-and-grout" technique. This consisted of drilling holes through the crown in a pre-determined pattern for later pumping of Intrusion Grout.

Initial grouting work stabilized the sand-and-gravel overburden. Then, working against this foundation, grout was forced into the porous concrete sealing it against water penetration. This required 210,000 cu. ft. of Intrusion Grout for the overburden and 41,000 cu. ft. for the lining.

With no interruption of tunnel traffic, Prepakt economically produced a dry tunnel meeting Union Pacific requirements.

Results like this show why many railroads rely on Intrusion-Prepakt for maintenance of their concrete structures.

For information on other applications of Prepakt methods and materials, write: Intrusion-Prepakt, Inc., Room 779-S, Union Commerce Bldg., Cleveland.

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ACI

News Letter Contents

November 1954

On the Cover—The striking beauty of concrete is evident in the intricate convolutions of a terrace wall in huge-scale concrete "claustra" in a residence in Gavea, Brazil, a suburb of Rio de Janeiro. Architect was Olavo Redig de Campos.—*Courtesy Cement and Concrete Assn. (London)*

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1954 ACI Awards go to Young, Valore, Kennedy, and Mather

The late Roderick B. Young, Rudolph C. Valore, Jr., Thomas B. Kennedy, and Katharine Mather will receive ACI awards from President Scholer at the 51st annual convention at the Hotel Schroeder, Milwaukee, Wis., Feb. 21-24, 1955. This announcement was made by the Board of Direction following approval of the report of the awards committee.

The Henry C. Turner medal will be awarded posthumously to Roderick B. Young. This award was founded in 1927 by the late Henry C. Turner, past president of ACI. It is awarded for notable achievements in or services to the concrete industry and may be awarded once in any year, but not necessarily in each year.

Rudolph C. Valore, Jr., will receive the Wason Medal for "the most meritorious paper" of the year

Cellular Concretes

which appeared in two parts in the May and June, 1954, ACI JOURNALS.

Thomas B. Kennedy and Katharine Mather will receive the Wason Medal for "noteworthy research" reported in

Correlation Between Laboratory Accelerated Freezing and Thawing and Weathering at Treat Island, Maine

which was published in the October, 1953, ACI JOURNAL.

The Wason Awards, established in 1917 by the late Leonard C. Wason, ACI past president, consist of a bronze medal and certificate presented to each awardee. For material published in the latest volume of *Proceedings* of the American Concrete Institute, an award is made for the "most meritorious paper." The research medal is given for original research work on a subject relevant to Institute activity and which, within the year, has been the subject of an Institute paper.

Continued on p. 4

Award Winners

Roderick B. Young—Turner Medalist

Roderick B. Young was research consultant for the Hydro-Electric Power Commission of Ontario prior to his death in August.

Mr. Young had been an ACI member since 1917 and in 1953 was elected to Honorary membership. For 16 years he served on ACI's Board of Direction as director, vice-president, president, and then as past president. He was a member of the Advisory Committee, 1929-46; chairman of the Program Committee, 1933-34, member, 1935-39; a member of the Publications Committee, 1933-46; member of the Technical Activities Committee, 1947-48, and chairman of that committee in 1949. In 1937 he was awarded the ACI Wason Medal for the most meritorious paper, "Concrete: Its Maintenance and Repair."

Mr. Young graduated from the University of Toronto in 1913 and then began work in the Testing Department of the Hydro-Electric Power Commission of Ontario. He was one of the first to use the water-cement ratio theory in the field, applying it to control of quality of the concrete on the High Falls development of the Hydro-Electric Power Commission in 1919. Though born in Minnesota, Mr. Young spent most of his active years in Canada where he was a member of the Engineering Institute of Canada, the Assn. of Professional Engineers of Ontario, and the Canadian Engineering Standards Assn. He was also a member of ASTM.

Rudolph C. Valore, Jr.—Wason Medalist

Rudolph C. Valore, Jr., is materials engineer, Building Technology Division, National Bureau of Standards, Washington, D. C. He has been employed by the National Bureau of Standards since 1938. He was a member of the Concreting Materials Section from 1939 to 1948 and has been with the Structural Engineering Section of the Building Technology Division since that time. Mr. Valore has engaged in research on dynamic testing and durability studies of concrete and other materials and on studies of lightweight concretes.

A graduate of North Dakota State Teachers College in 1936, Mr. Valore received an MA in education from New York University in 1938. He is a member of ACI Committee 213, Properties of Lightweight Aggregates and Lightweight Aggregate Concrete, and has contributed to the JOURNAL pages twice before. He is also a member of ASTM.

Thomas B. Kennedy and Katharine Mather—Wason Medalists

Thomas B. Kennedy is the recently appointed chief of the Concrete Division, Waterways Experiment Station, Corps of Engineers, Vicksburg, Miss. Mr. Kennedy began with the Corps of Engineers in 1931 following his graduation from the University of Illinois in 1930 with a BA in chemistry. From 1934 to 1939 he worked on various concrete projects on the upper Mississippi River. In 1939 he joined the staff of the Central Concrete Laboratory of the North Atlantic Division, and, in 1946, became chief of the Concrete Branch.

Mr. Kennedy has been a member of ACI since 1940 and has been active on Committees 115, Research; 609, Compaction of Concrete by Mechanical Means; and 613, Recommended Practice for Proportioning Concrete Mixes. It was recently announced that Mr. Kennedy had been nominated for the office of Director in the election at the 51st annual ACI convention in Milwaukee. He has contributed to the ACI JOURNAL twice before.

Mr. Kennedy is also a member of ASTM and of the American Society of Civil Engineers task committee on portland cement grouting.

Mrs. Mather is chief of the Petrography Section, Concrete Research Division, Waterways Experiment Station, Vicksburg, Miss. She has contributed articles to the "Letters from Readers" section of the ACI JOURNAL and contributed to other engineering periodicals. Her paper "Applications of Light Microscopy in Concrete Research" won for her the Sanford E. Thompson Award of ASTM Committee C-9, Concrete and Concrete Aggregates, in 1953.

Mrs. Mather attended Bryn Mawr College and John Hopkins University. She has been a geologist and engineer with the Corps of Engineers, U. S. Army, since 1942. Her specific responsibilities have been as petrog-

Continued on p. 18

Bagged "dry-mix" concrete proportioned by remote weight control

A remote-controlled weighing system for making up proportioned mixes of cement products is cutting costs and improving quality control at the new plant of Dry Mix Products Co., Roseville, Calif. Replacing a volumetric proportioning system, it has given the company a more accurate operation that can be run by one man, and has provided for quick and easy changing of proportions. Dry Mix Products makes pre-mixed packaged cement products, as well as numerous specialized aggregate items. Products include pre-mixed concrete, mortar, grout, and sand-clay mixes. Pre-mixed concrete, for example, is a 1:5 mixture of sand, crushed rock, and portland cement packed in 60- and 90-lb bags. The other products are similarly packaged.

Plant layout

In construction and layout of the new plant, every effort was made to provide the most modern methods for the utilization and conservation of labor, to provide the maximum use of materials, adequate protection for wet weather operation, and for the handling of finished materials.

Sand and crushed rock are stored in two outdoor 100-ton capacity concrete storage bins. From the bins, each material is transported to an outdoor hopper and feeder with a scoop loader. Sand and crushed rock are thoroughly dried to remove both surface and absorbed moisture before passing to indoor storage. A 30-in. diameter, 25-ft rotary dryer heated by natural gas accomplishes the job (Fig. 1). Natural gas heating is preferred since any other source of heat would tend to give the material an undesirable oily coating.

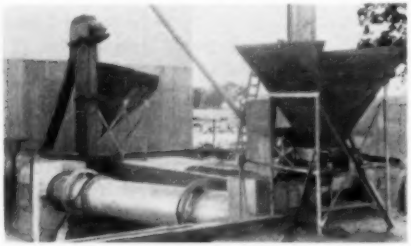

Fig. 1—Sand and crushed rock are dried in a rotary dryer to eliminate both surface and absorbed moisture

This dryer was designed with a pre-combustion chamber and a special exhaust system. These features, along with provisions for regulated feed, control the temperatures of the material passing through the dryer so moisture is removed without damaging the material. From the dryer, the material is discharged by bucket elevator into any of the four steel storage bins inside the plant.

Cement and clay do not require drying, and are brought to the plant in bulk, dumped into the outdoor hopper, and then transported by screw conveyor and bucket elevator into their respective bins.

Component parts of the new installation (Fig. 2) are four 30-ton steel bins (clay, sand, crushed rock, and cement), conveyors running from bins to scale, an electronically-controlled dust-tight automatic weighing unit, a scale dial that is hooked up to the weighing unit, the continuous mixing conveyor, the surge hopper, a conveyor running from the surge hopper to the bagging scale, and a high-speed bagging scale. Flow proceeds from bins to scale to mixer to surge hopper to bagging unit.

Proportioning

In the batch proportioning system, called Select-O-Weigh, designed by Richardson Scale Co., one automatic scale proportions all mixes by cumulatively weighing individual ingredients.

One man, working at a panel control board,

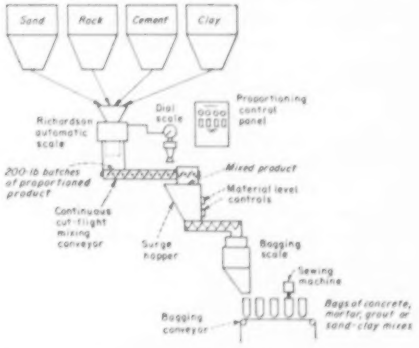

Fig. 2—Automatic proportioning and bagging flowsheet

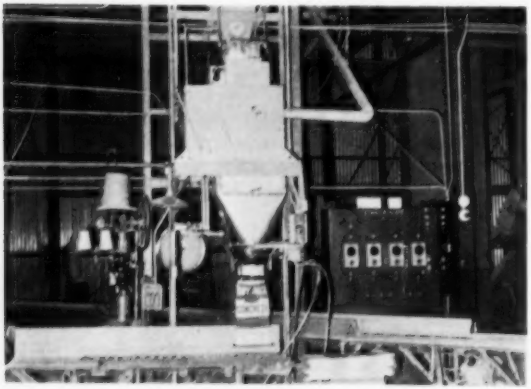

Fig. 3 — High-speed bagging scale with proportioning system control panel in right background

runs the entire proportioning operation. He can turn out 15 tons of mixed product per hr. The automatic scale is set remotely to deliver a 200-lb batch every 24 sec to a cut-flight mixing conveyor. Called a semi-continuous process, batches of proportioned product are continuously being discharged from the mixing conveyor. Proportioning is done in these relatively small batches to permit the use of a continuous mixing conveyor and to minimize segregation.

The central remote weight-control system is said to offer quick change-over, lowered over-all production costs, and permits a more flexible operation. Proportion changes can be made in a few minutes. Mixes are changed two or three times a day, depending upon orders received and the status of warehouse inventory.

Control of the entire process is made easy by the remote operation. Pilot lights on the control board show the progress of the feeding, weighing, mixing, and handling system. If anything should go wrong, the operator is informed immediately and shown where the source of trouble is. Using buttons on the board, he can then re-set and re-run the entire operation or any phase of it.

Besides the pilot lights and control buttons, the control panel is equipped with four vernier dials, one for each ingredient. Weights making up the mix are selected on the verniers. When the system is started up, each control delivers its respective material to the weigh hopper on the scale, and cuts off flow when the proper quantity has been delivered.

A typical batch is the concrete mix, which consists of 93 lb of sand, 67 lb of rock, and 40 lb of cement. Upon completion of the cycle, the scale discharges its load to the mixing conveyor, and after automatically checking empty tare balance, repeats the process.

With this system of controls, production is governed entirely by the bagging installation (Fig. 3). A small surge bin above the bagging unit is equipped with upper and lower level controls. The lower locks the bagging scale unless sufficient material is present for an accurate weighing. The upper control interrupts the batching unit if the bagging operation is lagging.

Equipment for the operation was selected primarily for material being handled. Thus, vibrating trays handle hot crushed rock; an air operated gate, the highly abrasive sand; and screw feeders, the flushy fine-ground cement and clay. Feeding devices terminate in a small inlet chute above the scale's weigh hopper. The chute moreover is not connected to the weigh hopper, and cannot interfere with weighings.

On the whole, the batch weighing system is said to assure the highest possible accuracies. For instance, accuracies of batching scales are better than 0.1 percent, weigh-feeders have accuracies in the order of 1 percent, and volumetric systems are about 2 percent.

Blackmore retires

Guy C. Blackmore has retired from his post as chief chemist for Northwestern States Portland Cement Co., Mason City, Iowa, after completing 35 years of service with the firm.

"They tilted 30,000 tons of concrete..."

This unique ore-loading wharf designed in Plastiment-concrete by Frederic R. Harris, Inc., Consulting Engineers of New York, for the Aluminum Company of Canada's gigantic Kitimat project, was cast on its side, floated into place and tilted 90° into final position.

Floating Plastiment-concrete structures are not new. . . . Of the seven American projects featured as Famous Floating Concrete Structures in the May issue of the Journal of the American Concrete Institute, five were constructed of Plastiment-concrete . . . most of the foreign jobs shown also contained Plastiment, supplied from the fourteen overseas Sika manufacturing organizations.

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Positions and Projects — ACI Members

Jelley named to Pacific post

Rear Admiral Joseph F. Jelley, Civil Engineer Corps, United States Navy, former Director of Construction, Department of Defense, and former chief of the Bureau of Yards and Docks of the Navy Department, has become director of the Pacific Division of the Bureau of Yards and Docks, and officer in charge, Tenth Naval Construction Brigade (Seabees) with headquarters at Pearl Harbor.

He has previously had tours of duty at Pearl Harbor; Norfolk, Va.; Alameda, Calif.; San Pedro, Calif.; and Washington, D. C. During World War II he served as officer in charge of the Advance Base Division in Chicago and as executive officer of the Fifth Naval Construction Brigade (Seabees) on Guam. He received the Legion of Merit for his wartime service. He has served as deputy and assistant chief of the Bureau of Yards and Docks, as chief of the Bureau and chief of civil engineers of the Navy, and as Director of Construction for the Department of Defense.

Admiral Jelley attended Cornell University and graduated from the Naval Academy. He completed his instruction in civil engineering at the Navy Postgraduate School, Annapolis, Md., and at Rensselaer Polytechnic Institute, Troy, N. Y.

He is a member of ACI and its Board of Direction, national vice-president of the Society of American Military Engineers, and a member of ASCE.

Kerekes named dean at Michigan Tech

Frank Kerekes recently assumed the duties of dean of the academic program at Michigan School of Mining and Technology, Houghton, Mich. Dean Kerekes goes to Michigan Tech after 34 years on the civil engineering staff at Iowa State College, Ames, Ia., where he was teacher, research worker, and administrator. Prior to accepting the post at Michigan Tech he served as assistant dean of engineering at Iowa State. While at Iowa he was active in local professional and civic circles, being a past president of the Iowa Engineering Society and of the Kiwanis Club, and chairman of the Ames City Plan Commission. He was also chairman of the Iowa Building Code Council.

Dean Kerekes received his BS degree from City College of New York and after 3 years of graduate study received the degree of Civil Engineer from Columbia University. It was immediately thereafter that he began his teaching career at Iowa State.

He has authored textbooks and articles on education and civil engineering. He has also served as consulting structural engineer for a number of architectural firms and industrial organizations.

Dean Kerekes has been a member of ACI since 1938. He was a member of the Technical Activities Committee, 1948-50, and the Board of Direction, 1951-54. He is now vice-president; chairman of Committee 318, Standard Building Code; and a member of Committee 315, Detailing Reinforced Concrete Structures.

Dean Kerekes is also a member of the American Railway Engineering Assn. and is on the general council of the American Society for Engineering Education.

Core appointed chief chemist

Carroll B. Core has been appointed chief chemist at the Nashville, Tenn., plant of Marquette Cement Mfg. Co., Chicago, Ill. Mr. Core was formerly chief chemist at Cementos Portland del Bajio, S. A., Leon, Gto., Mexico.

Moments and stresses in slabs

Due to continued demand the paper "Moments and Stresses in Slabs," by H. M. Westergaard and W. A. Slater, originally published in ACI *Proceedings* V. 17, 1921, has been reprinted. Copies of the 124-page paper, in covers, are now available at $2 from ACI headquarters.

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Builder claims to have solved "sweating" problem in all-concrete houses

A Maryland homebuilder, Carroll C. Martin, claims to have solved one of the oldest problems in the homebuilding field—"sweating" or condensation on interior walls of all-concrete houses. And, at the same time, he is said to have overcome a second problem that has harassed others who have tried to build concrete houses in large-scale housing developments—drying shrinkage cracks. Few details of the process are available pending outcome of a patent application.

In the past, homebuilders faced with these problems had to strip the walls and then use rock lath and plaster. That made the construction costly and defeated the basic advantage of an all-concrete house—low cost.

Construction

Walls of the house (Fig. 1) are 6 in. monolithic lightweight concrete, finished on the exterior with stucco and painted on the interior. Insulation provided by the wall construction is approximately equal to that provided by 4 in. of brick, 4 in. of concrete block, ¾-in. furring, ½-in. rigid insulation (not plasterboard), and ½ in. of plaster, according to an engineering report on the building.

Strength of the concrete determined by standard cylinder tests was about 2000 psi at 7 days and 28-day strength was approximately 2700 psi. The heat transmission coefficient for the wall construction was 0.212 under standard conditions. This conforms to accepted good practice in house construction in the Baltimore area, the engineers reported.

Temperature control is provided by use of reinforcing in the wall panels. Objectionable cracks due to shrinkage in the initial stages of the setting of the concrete were minimized by the use of control joints which were placed in accordance with accepted good engineering practice. The consulting engineers made a close inspection of the completed house after approximately 3 weeks of heating and reported no cracks. They indicated that the control joints and reinforcing were properly detailed and installed.

Other features

Another test was made to determine the watertightness of the 6 in. thick concrete exterior wall. The test consisted of maintaining a constant head of water against the outside of the exterior wall of the house. The head was held at 2 ft for 14 days. Inside and outside surfaces of the wall were examined twice daily. At no time during the 14-day period did an examination show any moisture on the inside of the wall, and the wall color remained unchanged, the engineering report showed.

In addition to the special mix's high insulating quality, moisture resistance, and nonsweating characteristics, it contains no gravel and all trim and other woodwork can be nailed directly to it. The concrete weighs approximately one-third less than conventional concrete.

The Martin homes have no studding, joists, sheathing, bridging, shingles, dry wall, plaster, rock lath, or stripping of any kind. Only about 20 lb of assorted nails are used in the entire construction of the house. All walls are reinforced with steel mesh. Exterior walls are 6 in. thick; all inside partition walls are 4 in. concrete masonry.

The roof is 2-in. Tectum board, which is fire resistant, with a three-ply built-up felt

Continued on p. 23

Fig. 1—All-concrete house developed by Carroll C. Martin, Maryland homebuilder, has clean modern lines

Who's Who This Month

D. H. Pletta and D. Frederick

"Model Analysis of a Skewed Rigid Frame Bridge and Slab," p. 217, is presented by D. H. Pletta and D. Frederick, professor and head, and associate professor, respectively, Applied Mechanics Department, Virginia Polytechnic Institute, Blacksburg, Va., as part of the work of ACI Committee 314, Rigid Frame Bridges.

Prof. Pletta has been on the faculty of VPI since 1932. He received his BS in civil engineering at the University of Illinois in 1927, and his MS degree from the University of Wisconsin in 1931. In World War II Prof. Pletta served as a major in the mechanics department at the U. S. Military Academy, West Point, and with the Philadelphia Ordnance District.

Prof. Pletta has been an ACI member since 1931 and is chairman, ACI Committee 314, Rigid Frame Bridges, and a member of ACI Committee 115, Research, and ACI-ASCE Committee 321, Design of Reinforced Concrete Slabs.

Prof. Frederick studied at Virginia Polytechnic Institute and received a BS in civil engineering in 1944 and an MS in civil engineering in 1948. He also did additional work in engineering mechanics at the University of Michigan. He was assistant professor of Applied Mechanics at Virginia Polytechnic Institute from 1948 to 1951 and has been associate professor of Applied Mechanics since 1951.

Prof. Frederick is associated with Chi Epsilon, Tau Beta Pi, Phi Kappa Phi, and Sigma Xi fraternities. He is a member of ACI, ASCE, the National Society of Professional Engineers, and the Virginia Academy of Sciences.

George L. Kalousek

George L. Kalousek, Research Division, Owens-Illinois Glass Co., Toledo, Ohio, reports on "Fundamental Factors in the Drying Shrinkage of Concrete Block," p. 233.

Dr. Kalousek, in addition to his position with Owens-Illinois Glass Co., is project director of studies on concrete at the University of Toledo. He was graduated from the University of Idaho in 1930 with a BS in chemical engineering. MS and PhD degrees in chemistry were received in 1936 and 1941, respectively, from the University of Maryland.

From 1930-1944 Dr. Kalousek was engaged in research on the physical and chemical properties of cements and concrete at the National Bureau of Standards.

Gordon W. Greene

In "Test Hammer Provides New Method of Evaluating Hardened Concrete," p. 249, Gordon W. Greene describes the Schmidt test hammer.

Mr. Greene is the district testing engineer, Pacific Coast Aggregates, Inc., Fresno, Calif. He was employed as a laboratory technician in 1946 following 39 months in the U. S. Army Signal Corps. While in the laboratory, he worked at developing an acid resisting concrete. He was promoted to his present position in 1947.

While working, Mr. Greene found time to attend Fresno State College, part time, and received a BA in geology in 1954. He has been a member of ACI since 1947 and is also a member of Phi Kappa Phi, the American Institute of Mining and Metalurgial Engineers, and the Society of American Military Engineers.

G. C. Ernst, R. R. Marlette, and G. V. Berg

"Ultimate Load Theory and Tests of Cylindrical Long Shell Roofs," p. 257, is the joint contribution of G. C. Ernst, R. R. Marlette, and G. V. Berg.

Prof. Ernst is chairman, Department of Civil Engineering, University of Nebraska, Lincoln, Neb. He graduated from the University of Michigan in 1925 with a BS in civil engineering, and has been associated with academic work since 1930 at Iowa State College, University of Maryland, and University of Nebraska.

Prof. Ernst is a registered professional engineer in Iowa. He is a member of ASCE,

Voids in bridge walkway save concrete!

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ASTM, SPEE, Sigma Xi, Tau Beta Pi, and has been an ACI member since 1935.

Prof. Marlette attended the University of Nebraska where he received a BS in civil engineering in 1943 and an MS degree in 1952. He served as field engineer for one year on the Garrison Dam for the Corps of Engineers, U. S. Army, followed by three years on active duty in Europe. He later spent three years as resident engineer, Black and Veatch, Consulting Engineers, on municipal projects. Prof. Marlette joined the staff of the Civil Engineering Department, University of Nebraska, in 1950 as assistant professor. He was on leave of absence from the university for a short while to act as irrigation engineer for the President's Missouri Valley Basin Survey Commission.

Mr. Berg, after receiving his BS in civil engineering, *cum laude*, from the University of Nebraska in 1941, was employed by the Special Engineering Division of the Panama Canal where he was engaged in structural research in connection with the third locks project. Early in World War II that project was abandoned and he was transferred to the Inspection Department of the Panama Canal in Pittsburgh, Pa. In 1943 he was commissioned in the U. S. Army and was assigned to an area engineer office in England.

In 1946 he returned to the Special Engineering Division of the Panama Canal for work in the Construction Methods and Estimates Section. When those studies were completed he returned to the United States and became office engineer for C. Iber and Sons, contractors, Peoria, Ill. He later became a partner in Berg-Hartsfield Co., contractors, Lincoln, Neb., and in 1951 took his present position as structural engineer for Capital Steel Co. Currently, Mr. Berg is undertaking graduate research in reinforced concrete thin shells at the University of Nebraska. He is a member of ACI, ASCE, Sigma Xi, and Pi Mu Epsilon.

M. F. Macnaughton and John B. Herbich

M. F. Macnaughton and John B. Herbich teamed up to write the contribution "'Accidental' Air in Concrete," p. 273. They were associated in the construction of Chute du Diable and Chute a la Savane Dams in Quebec, Mr. Macnaughton as a consultant and in over-all charge of inspection with Milton Hersey Co., Ltd., and Mr. Herbich as civil engineer with the Aluminum Company of Canada, Ltd., in charge of the concrete control testing laboratory.

Mr. Macnaughton attended McGill University for a year before joining the Canadian Expeditionary Force, in 1917, and serving in France. He resumed his studies at McGill in 1919 and in 1922 received a BS in chemical engineering. In 1924 he received an MS in civil engineering from the University of Michigan, where in 1923-24 he was a Roy D. Chapin Fellow in highway engineering.

He joined the Milton Hersey Co., Ltd., in 1924 as chief field inspector and was appointed director of the paving department in 1933 and vice-president in 1946. Since 1953 he has been vice-president of Hersey Laboratories, Ltd., successors to Milton Hersey Co., Ltd.

He has been engaged since graduation in inspection of construction and in laboratory testing of construction materials. He is a member of ACI, the Engineering Institute of Canada, the Corporation of Professional Engineers of the Province of Quebec, Canadian Good Roads Assn., Canadian Standards Assn., National Research Council Committee on Cement and Concrete Research in Canada, and a charter member (1924) of the Assn. of Asphalt Paving Technologists.

Mr. Herbich graduated from the University of Edinburgh, Scotland, with a BS in civil engineering. He served in Europe with the Polish army under British command from 1940 to 1945. After an employment with the Netherlands Hydraulic Research Laboratory at Delft, he joined the staff of the Aluminum Company of Canada, Ltd. In addition to Chute du Diable and Chute a la Savane concrete gravity-type dams, he was associated with construction of an earth dam and diking system in Arvida, Quebec, and Kitimat Project in British Columbia where he was in charge of concrete control and testing.

He was appointed a research fellow at the University of Minnesota in 1953 where he is actively engaged in research at the St. Anthony Falls Hydraulic Laboratory. Currently he is studying for a PhD in civil engineering.

Mr. Herbich, in addition to being an ACI member, is a member of the Engineering

Institute of Canada, and the International Assn. for Hydraulic Research.

T. C. Powers, L. E. Copeland, J. C. Hayes, and H. M. Mann

"Permeability of Portland Cement Paste," p. 285, is the joint contribution of T. C. Powers, manager, Basic Research, Portland Cement Assn.; L. E. Copeland, senior research chemist, Research Department, Portland Cement Assn.; J. C. Hayes, research chemist, Zonolite Co., Evanston, Ill.; and H. M. Mann, assistant research physicist, Research Department, Portland Cement Assn.

Mr. Powers is manager, Basic Research Section, Portland Cement Assn., Chicago, Ill. He spent the first year and a half after graduation from Willamette University, Salem, Ore., in 1925, in the testing laboratory of the Oregon State Highway Commission. Following this he was in charge of concrete proportioning, inspection, and tests at the Bull Run Dam. In 1930 he spent a short time in the operation of a ready-mixed concrete plant and studies of pozzolanic cements.

Since 1930 Mr. Powers has been a member of the staff of the Portland Cement Assn. advancing from associate engineer to assistant to director of research in 1934 and was appointed to his present position in 1940. He has been an ACI member since 1927, twice a Wason Medalist, and is a frequent contributor to the JOURNAL. He is a member of ACI Committees 212, Admixtures, and 611, Inspection of Concrete.

Mr. Copeland did his undergraduate work at John Fletcher College where he received a BA in chemistry in 1930. He received a PhD in physical chemistry from the University of Chicago in 1941 and was a research fellow there in 1941-42.

Mr. Copeland worked as a chemist with the U. S. Rubber Co. from 1942 to 1947. In 1947 he assumed his present position with PCA. At present he is working on the study of physical and chemical properties of hardened portland cement pastes.

Mr. Hayes received a BA in chemistry from Wheaton College in 1947 and an MS in chemistry from Northwestern University in 1953. He worked as a control chemist for North American Portland Cement Corp., Catskill, N. Y., in 1946 and as an assistant research chemist in the Basic Research Section of the PCA Research Department from 1947 to 1953. He moved to his present position, research chemist, Zonolite Co., Evanston, Ill., in 1953 and is at present working on fundamental studies of chemical and physical properties of vermiculite. Mr. Hayes is a member of the American Chemical Society, Phi Lambda Upsilon, and Sigma Xi.

Mr. Mann attended Cornell College where he received a BA in mathematics, physics, and engineering in 1950. He served as research assistant in the Physics Department of Northwestern University and received an MS in physics from there in 1952. Upon graduation Mr. Mann became assistant research physicist, Basic Research Section, PCA Research Department. He is currently working on a study of diffusion of water vapor through hardened neat cement paste.

AGC and PCA win safety awards

The Associated General Contractors of America and the Portland Cement Assn. were given awards by the National Safety Council at the National Safety Congress held in Chicago in October. The awards give recognition to these associations for the general excellence of their safety services and their contribution to the reduction of occupational injuries in their industries. Selections were made on the basis of accident prevention activities such as publicity, safety conferences, contests, and publication of technical material. Nine other associations were also recognized.

1955 Convention Exhibits

Those manufacturers and distributors interested in exhibiting at ACI's 51st annual convention in Milwaukee, Feb. 21-24, 1955, should contact:

Harold S. Hahn, Chairman,
Committee on Exhibits, 1955 ACI Convention
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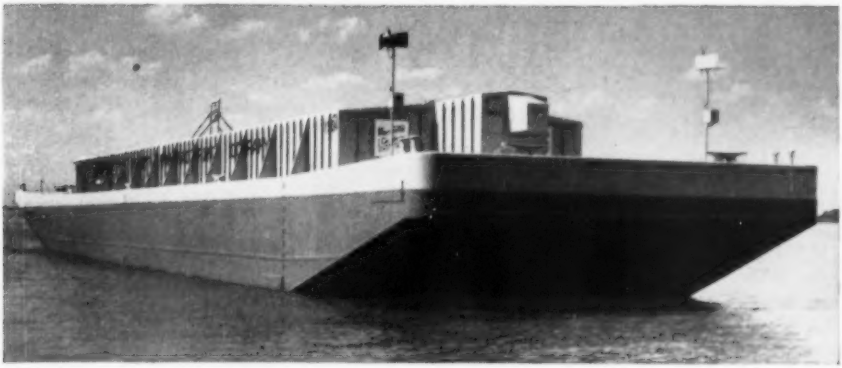

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New Members

The Board of Direction approved 37 Individual applications, 1 Corporation, 11 Juniors, and 2 Students making a total of 51 new members. Considering losses due to resignations and nonpayment of dues the total membership as of October 1 was 6592.

Individual

ALLEN, JACK, Los Angeles, Calif. (Secretary, Mgr., Concrete Masonry Association)
ARNOLD, ALBERT H., Syracuse, N. Y. (Partner, Ketcham, Miller, Arnold, Archs.)
ARNOTT, K. M., Calgary, Canada (Draftsman, The Dominion Bridge Co., Ltd.)
BALLARD, WILSON T., Baltimore, Md. (Pres., The Wilson T. Ballard Co.)
BEER, FRED T., Toronto, Canada (Gen. Mgr., Toronto Cast Stone Co., Ltd.)
BERNARD, GERALD W., Calgary, Canada (C. E., R. M. Hardy & Assocs., Ltd.)
BERNARD, KENNETH, Dexter, Mich. (Chf. Engr., Re-Steel Service Co., Detroit, Mich.)
BICKEL, GEORGE, Austin, Texas (Engr. & Sales Mgr., The Featherlite Corp.)
BRANDT, ADOLFO MEDINA, Caracas, Venezuela (Planning & Design, Servicia Ingeneria Militar, Min. de la Defensa")
CHANEY, D. L., Washington, D. C. (Mgr., PCA, Wash. Office)
COATS, EDWARD RAYMOND, Auckland, New Zealand (Mgr., Vibrapac Block Plants, C. E., Winstone Ltd.)
COHEN, HENRY, Elkhart, Ind. (Mfr. of Concrete Masonry Products, Cone-Crete Products)
COLTON, J. S., Vernon, Calif. (Bldg. Engr., City of Vernon)
DELIZ, HECTOR A., Santurce, P. R. (Design & Construction of Bldgs.)
DUNWOODY, G. A., Iola, Kansas (C. E., Municipal, Roads & Bridges)
DUWELIUS, THOMAS A., Terre Haute, Ind. (Asst. Prof. of C. E., Rose Polytechnic Institute)
EDWARDS, W. C., Honolulu, T. H. (Mgr., Nanakuli Paving & Rock Co.)
FUNG, LOK-HUNG, Singapore, Malaya (Asst. Designer of Engrg. Dept., Singapore Improvement Trust)
GARDNER, WILLIAM H., JR., Durham, N. C. (Cons. Engr., Gardner & Meir)
GRIFFIN, W. T., Amarillo, Texas (Mgr., Western Sand & Gravel Co., Inc.)
GWYER, W. K., Trail, Canada (Asst. Mgr., Engrg. Div., The Consolidated Mining & Smelting Co. of Canada, Ltd.)
LEBELLE, P., Paris, France (Director, Institute Technique)
MCCLELLAN, J. E., Elizabethon, Tenn. (Plant Supt., Elizabethton Cinder Block Co.)
MCGONAGLE, ROBERT E., Vacaville, Calif. (Constr. Supv., State of Calif., Dept. of Public Works)
MITCHELL, F. R., Pittsburg, Kansas (Supv. Design Constr., Mitchell Contracting Co., Inc.)
OSBORN, E. E., Wilmington, Ohio (Secretary, Sales Mgr., The Clinton Construction Co.)
O'SULLIVAN, JAMES J., New York, N. Y. (Technical Service Representative, North American Cement Corp.)
PETZAR, GEORGE M., Monterey Park, Calif. (Field Contact Engr., PCA)
REPLOGLE, JOHN, Las Vegas, Nevada (Struct. Engr.)
SELDEN, GEORGE, Cleveland, Ohio (Pres. & Technical Director, Upco Co.)
SHERWIN, EDWIN T., Skokie, Ill. (Chf. Engr. in chge. of Design, etc., American Linen Supply Co., Chicago)
SHERWOOD, LEON A., Independence, Kansas (Executive Vice-Pres., A. G. Sherwood Construction Co.)
SIEVERLING, P. A., Birmingham, Ala. (Gen. Mgr., Sales, Cons. Engr., E. L. Culver, Florence, Ala.)
SPRADLIN, ANDREW J., 611 Gravier St., New Orleans, La. (Distr. Engr., PCA)
TRAUM, ELIAHU, Cambridge, Mass. (C. E., The Engineer's Society, Ltd., Haifa, Israel)
WANG, JAMES C., Taipei, Taiwan, China (Senior Engr., & Deputy Chf., Constr. Dept., Taiwan Highway Bureau)
WILSON, EDWARD L., JR., Dallas, Texas (Cons. Engr.)

Corporation

CLARKSON COLLEGE OF TECHNOLOGY, Potsdam, New York (Dell F. McIntyre, Treas.)

Junior

ARBOLEDA DUQUE, J. M., Cali, Colombia (Chf. Engr., Arboleda & Oliver)
BIEG, WILLIAM EARL, JR., Edgerton, Wyoming (Corps. of Engrs.)
FELDMAN, ARTHUR, Urbana, Ill. (Research Assoc., Univ. of Ill.)
FITZSIMONS, LOUIS NEAL, New York, N. Y. (Chf. Concrete Section Supv. Field Inspection, East Atlantic Distr., Corps. of Engrs.)
KHALLI-UR-REHMAN, MOHD, Murree Road Rawalpindi (Pakistan), (Asst. Engr., Constr. & Maint., Public Works Dept.)
MACHUTCHIN, C. J., Montreal, Canada (Engr., Diamond Flooring, Ltd.)
MATTHIES, HARRY E., Dallas, Texas (Jr. Engr., George L. Dahl)
PENALOZA, NEFTALI ROSAS, Bogota, Colombia (C E., Spinel & Cia. Ltd.)
PHILLIPS, THOMAS B., JR., Richmond, Va. (Plant Mgr., Superior Building Units, Inc.)
SASAKI, RONALD TOKIO, San Francisco, Calif. (Jr. C. E., D. P. W. Div. of Highways, Calif.)
WAGNER, JAY J., New York, N. Y. (Struct. Engr., DiStasio & Van Buren)

Student

SATTLER, DONALD C., Avon, S. D. (S. Dak. School of Mines & Tech.)
ZUNIGA, ANTONIO AYALA, Mexico, Mex. (Nat. Univ. of Mex.)

ACI awards

Continued from p. 4

rapher, Central Concrete Laboratory, Mt. Vernon, N. Y., 1942-44; concrete research engineer, 1944-46; and petrographer, Concrete Research Division, 1946 to date.

Mrs. Mather is a member of ACI, the American Institute of Mining and Metalurgical Engineers, and the American Ceramic Society. She is a member of the Mineral Aggregates Committee of the Industrial Minerals Division of AIME.

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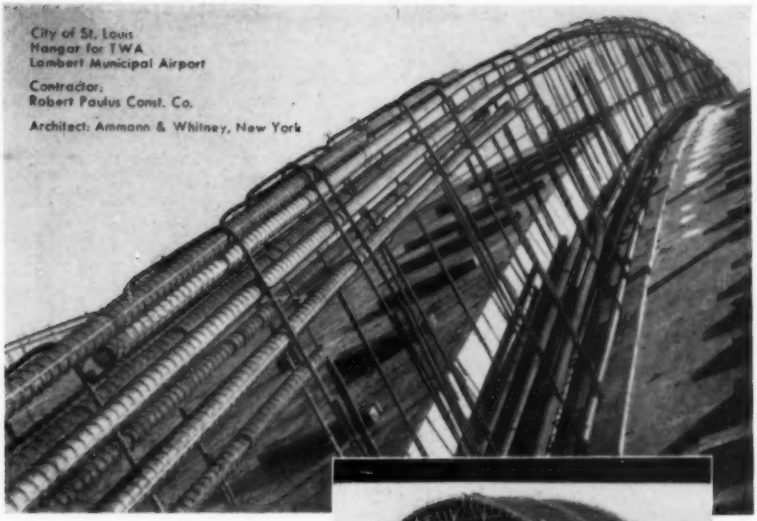

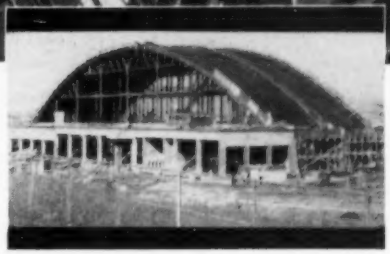

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Honor Roll

February 1—September 30, 1954

Raymond E. Davis heads the Honor Roll again this month with 22 credits. Henry L. Kennedy now holds second place with 8½ credits. C. H. Scholer and Lewis H. Tuthill share third place with 8 credits each.

Are YOU an ACI booster? Have YOU introduced an applicant for membership in ACI thus far this year?

Raymond E. Davis	22
Henry L. Kennedy	8½
C. H. Scholer	8
Lewis H. Tuthill	8
James A. McCarthy	7
F. N. Menefee	7
Samuel Hobbs	6
Howard Simpson	6
Earl I. Brown	5
Joseph G. Perri	5
Grant Bloodgood	4
Ted Dahlstrom	4
J. Luis Montiel G.	4
Adrian Pauw	4
Constantin Polidoroff	4
Robert F. Adams	3
V. J. Cespedes	3
Herbert K. Cook	3
Robert S. Harris	3
Elmo C. Higginson	3
John J. Hogan	3
J. W. Kelly	3
Hendrik Lauga	3
Ramon Matheus C.	3
I. E. Morris	3
Robert J. Wening	3
Phil M. Ferguson	2½
A. Amirikian	2
Edwin C. Anderson	2
J. H. Appleton	2
Irving S. Backler	2
George F. Bishop, Jr.	2
Frederick L. Browne	2
Carlos D. Bullock	2
R. A. Burmeister	2
Celso A. Carbonell	2
Thomas Cholnoky	2
Miles N. Clair	2
F. Thomas Collins	2
Clayton M. Crosier	2
J. J. Fox	2
J. Fruchtbaum	2
G. M. K. Hagen	2
Raja Iliya	2
J. E. Jellick	2
E. A. Johns	2
Clyde E. Kesler	2
R. G. King	2
Warren C. Leinbach	2
L. D. Long	2
H. J. McCrodden	2
William McGuire	2
W. H. Muirhead	2
William T. Neelands	2
Charles Peterson	2
H. C. Pfannkuche	2
Balbino Isagani Ponce	2
C. J. Posey	2
Hugo Quillian	2
Jack E. Rosenlund	2
Herbert A. Sawyer, Jr.	2
Leo W. Schmidt	2
Mete Sozen	2
Taylor E. Strubinger	2
J. W. Tinkler	2
David Tom	2
Frank E. Watson	2
Arthur G. Wood	2
Charles C. Zollman	2

Errata

The following corrections should be made in "Ultimate Load Theory and Tests of Cylindrical Long Shell Roofs," on p. 257 of this issue.

p. 260—the reference in the eighth line under "Inelastic buckling" should be changed from 4 to 5.

p. 261—in the definition of $\left(\frac{r}{t}\right)_o$ under "Notation," the phrase "(see reference 4)" should be changed to "(see reference 5)."

p. 262—in Eq. (4) S should be changed to s.

p. 262—in Eq. (8), (9), (10), and the line "V'_{max} = see Eq. (9)," V'_{max} should be changed to v'_{max}.

p. 266—in the last line "Eq. (1)" should be changed to "Eq. (2)."

p. 269—in the first and second sentences under "Example," reference 8 should be changed to reference 9.

p. 269—the line under "Dimensions" reading "β_T = ... 0.64577 radians" should be changed to "0.6458 radians."

p. 269—in the fourth line under *Tension flange steel*, "β_{NA} = ... 0.19373 radians" should be changed to "0.1937 radians."

p. 269—in the last line, V_{max} should be changed to v_{max}.

p. 270—in the first line S should be changed to s.

p. 270—in the third line under *Transverse bending moment at crown*, V'_{max} should be changed to v'_{max}.

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LOOKING AHEAD

November 15-17, 1954 — Fifth National Conference on Standards, American Standards Assn., Hotel Roosevelt, New York, N. Y.

November 19-30, 1954—Second International Congress of Civil Engineering, Caracas, Venezuela

December 6-8, 1954—Third Illinois Structural Engineering Conference, University of Illinois, Urbana, Ill.

December 9, 1954—Modular Coordination Conference, National Academy of Sciences, Washington, D. C.

December 10-11, 1954 — Third Annual Quality Concrete Conference, North Carolina State College, Raleigh, N. C.

January 9-13, 1955—Silver Anniversary Convention, National Ready Mixed Concrete Assn., Miami, Fla.

January 9-13, 1955—39th Annual Convention, National Sand and Gravel Assn., Miami, Fla.

January 10-13, 1955—53rd Annual Convention, American Road Builders' Assn., Roosevelt Hotel, New Orleans, La.

January 24-27, 1955 — Annual Meeting and Exposition, National Concrete Masonry Assn., Cleveland Auditorium, Cleveland, Ohio

January 24-27, 1955—Plant Maintenance and Engineering Show, International Amphitheatre, Chicago, Ill.

January 31—February 4, 1955—Committee Week and Spring Meeting, American Society for Testing Materials, Netherland Plaza Hotel, Cincinnati, Ohio

February 6-11, 1955—San Diego Convention, American Society of Civil Engineers, Hotel U. S. Grant, San Diego, Calif.

February 7-9, 1955—38th Annual Convention, National Crushed Stone Assn., Netherland Plaza Hotel, Cincinnati, Ohio

February 21-24, 1955—51st Annual Convention, American Concrete Institute, Hotel Schroeder, Milwaukee, Wis.

Hubbard attends slag conference

Fred Hubbard, director of research, National Slag Assn., Washington, D. C., was the official delegate of the American slag industry at the International Conference on the Utilization of Blast Furnace Slag, held in Brussels, Belgium, in October. Mr. Hubbard, a recognized authority on the utilization of slag, presented a paper entitled "Production and Utilization of Iron Blast Furnace Slag in the United States of America." He is an active member of ACI serving on Committees 115, 613, 617, and 621. He is also a past member of the Board of Direction.

Statement of the Ownership, Management, and Circulation Required by the Act of Congress of August 24, 1912, as Amended by the Acts of March 3, 1933, and July 2, 1946 (Title 39, United States Code, Section 233)

Of JOURNAL OF THE AMERICAN CONCRETE INSTITUTE published ten issues a year at Detroit, Michigan, for September, 1954.

1. The names and addresses of the publisher, editor, managing editor, and business managers are: Publisher, American Concrete Institute, 18263 W. McNichols Rd., Detroit 19, Mich.
Editor, William A. Maples, 18263 W. McNichols Rd., Detroit 19, Mich.
Managing Editor, Robert E. Wilde, 18263 W. McNichols Rd., Detroit 19, Mich.
Business Manager, None.

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5. The average number of copies of each issue of this publication sold or distributed, through the mails or otherwise, to paid subscribers during the 12 months preceding the date shown above was: (This information is required from daily, weekly, semiweekly, and triweekly newspapers only.)

WILLIAM A. MAPLES
(Signature of editor)

Sworn to and subscribed before me this 20th day of September, 1954.

EDW. J. HORROCKS, Notary Public
[SEAL] (My commission expires Sept. 30, 1957)

BIBLIOGRAPHY ON PRESTRESSED CONCRETE

This 86-page book lists 2000 American and foreign literature references on the subject of prestressed concrete, published 1896 through 1953. A separate section lists some 60 United States, British, German, and French patents. The 8½ x 11-in. format is also punched for easy filing in three-ring binders.

$2.00

AMERICAN CONCRETE INSTITUTE

18263 W. McNichols Rd. Detroit 19, Michigan

Sweating problem

Continued from p. 11

surface. The floor is a 4-in. concrete slab. The homes use a gas-fired forced hot air heating system with heat ducts to each room and a central return duct in the center hall. Heat tubes are completely encased in the floor slab concrete. Over-all dimensions of the home are 30 x 24 ft.

For formwork Mr. Martin used the Symons forming system. Included were 184 panels, 2 x 8 ft; 16 fillers, 20 in. x 8 ft; 16 fillers, 12 in. x 8 ft; 8 inside corners, 8 ft; and 8 outside corners, 8 ft; and 480 waler sets. All construction operations were streamlined to get high production.

Market demand

Although the home was appraised at $9000, without land, Mr. Martin offered the home for $6900, without land. He opened his first model home in March of last year and sold out an entire development of 113 houses in less than 3 weeks. With an overflow of buyers from the first offering, Mr. Martin built a second development 20 miles from the first. He completed the model home in 2 weeks from the day that ground was broken, and opened it to the public on July 19. One week later, he had sold out the entire development of 78 houses and had 25 "back-up" orders, with cash deposits in hand. He now is negotiating for an 80-acre tract of land that will enable him to build a 350 to 400 home development.

Benham Engineering appoints associate engineers

Benham Engineering Co., Oklahoma City, Okla., announced recently the appointment of Kirk H. Stealy, Allen G. Poppino, and T. B. Shoebotham as associate engineers. The affiliation of Frank Rodesney, associate engineer, with the firm was also announced.

Modular coordination conference

A one-day conference on modular coordination will be conducted by the Building Research Institute December 9 at the National Academy of Sciences, Washington, D. C. The program will appraise the value of modular coordination in building today and examine further developments of its use by the building industry. Sponsors are the American Institute of Architects, the Ameri-

can Standards Assn. which promulgated the 4-in. module as the "least common denominator" when setting the dimensions of a building or when fixing the stock sizes of a building product, the Associated General Contractors of America, the Assn. of Collegiate Schools of Architecture, the Building Research Advisory Board, the Chamber of Commerce of the United States, the National Assn. of Home Builders, and The Producers' Council. This will be the eighth major conference to be conducted by the Building Research Institute.

Tools, Materials, Services

Under this heading note will be made from time to time of producer literature of presumed technical interest (and available from its source for the asking) to ACI users of tools, equipment, materials, accessories, and special services.

Block handling

Waco Manufacturing Co. has developed a lightweight magnesium alloy block lifter. The block-lift enables the mason to hold the block firmly with one hand and "butter" and line up the block with the other. The unit is constructed in one piece and the jaws of the lifter clamp tight on the block when raised. Block-lifts are also available in tandem form for hoisting block to elevated platforms.—Waco Manufacturing Co., Dept. KP, 3565 Wooddale Ave., Minneapolis 16, Minn.

Colored cement

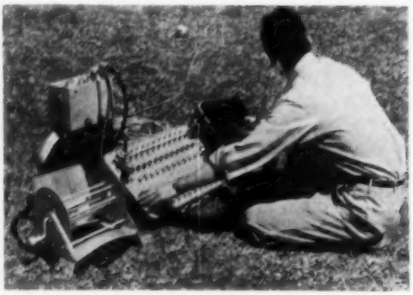
A factory-mixed colored cement has been developed by Murray-Williams Color and Chemical Co. The product, Rainbow colored cement, is a blend of mineral pigments and white portland cement. Ratio of pigments to cement are said to be within Portland Cement Assn. tolerances recommended for strength, bond, and durability. It is claimed that colors will not fade due to sunlight and exposure to weather, nor will pigments react unfavorably with the cement.—Murray-Williams Color and Chemical Co., 353 Boyden Ave., Maplewood, N. J.

Handling construction materials

A brochure issued by The Prime-Mover Co. describes and illustrates the use of power wheelbarrows to haul all kinds of construction materials on a variety of projects.—The Prime-Mover Co., Muscatine, Iowa

Portable aggregate plants

Booklet No. 650 issued by Pioneer Engineering Works, Inc., explains how a portable plant can be used to produce aggregates meeting exact gradation requirements. Through a series of cutaways and diagrams, accompanied by descriptive text material, the booklet gives a clear understanding of the operating principles of portable plants. Comparative general specifications on seven sizes of plants are included.—Pioneer Engineering Works, Inc., Minneapolis 13, Minn.



Determining overburden at building sites

Southwestern Industrial Electronics Co. has developed a refraction seismograph system which is being used to determine the thickness of the overburden at projected building sites. The system has been used for determination of depth of bedrock, analysis of fill material, location of water-bearing strata, and other subsurface determinations. The information acquired with the seismograph is presented in continuous horizontal and vertical profile. A booklet, "Bedrock Determination by the Seismic Method," describes the equipment, basic theory of the method, and solution of a representative bedrock determination problem.—Southwestern Industrial Electronics Co., 2831 Post Oak Rd., Houston 19, Texas

Truck mixer

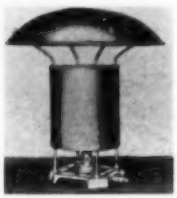
Bulletin TM 1054 presents data on Construction Machinery Co.'s Transcrete truck mixers. The mixers are available in 3½-, 4½-, and 5½-cu yd sizes with permissible ½ cu yd added rating.—Construction Machinery Co., Waterloo, Iowa

Polarizing microscopes

A series of polarizing microscopes for use in the cement industry and related fields has been announced by Bausch & Lomb, and described in Catalog No. D-130. The microscopes feature a ball bearing, low-position, fine-focusing stand and a revolving stage with 1-deg graduations and vernier reading to 6 min of arc. Standard equipment is 10X and 45X strain-free achromatic objectives. Substage is of the variable focus type. For protection against dust, optical elements of the flip-in Polaroid analyzer are enclosed in the body tube. A bertrand lens, for isolation of small crystal interference figures, is employed.—Bausch & Lomb Optical Co., Rochester 2, N. Y.

Portable gas salamander

An L-P gas portable salamander has been marketed by Weldit, Inc. It generates 151,200 Btu and consumes 7 lb of L-P gas per hr. The Flame Dome heat distributor plate gives 360 deg heat distribution. The salamander is available in two models: (1) No. 800 Heaterama floor type design and (2) No. 850 Heaterama tank top model.—Weldit, Inc., 990 Oakman Blvd., Detroit, Mich.



Membership in the American Concrete Institute

To facilitate prospective members in joining the Institute, membership application forms are provided. Present Members may aid by bringing these forms to the attention of those who may profit from membership advantages. The grades of membership are described overleaf.

All who have an interest in concrete and a desire to improve it through a nonprofit educational service in gathering, correlating, and disseminating information on design, construction, manufacture, use, and maintenance of concrete structures and products are eligible for Institute membership.

There are many opportunities in the Institute for technical committee activity, contributions from your experience in technical papers and the briefer "Letters from Readers" section, and in reviewing technical literature. Thus you can help further ACI's aim "to provide a comradeship in finding the best ways to do concrete work of all kinds and in spreading that knowledge," and at the same time benefit from the experiences of other Members.

(cut here)

Board of Direction, American Concrete Institute
18263 W. McNichols Road
Detroit 19, Michigan

Date_____

Individual Members, North America and U. S. Possessions	**$15.00**
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Of the annual dues, $12.00 is for the JOURNAL of the American Concrete Institute (except that dues for Junior and Student Members apply in full for the JOURNAL).

The undersigned hereby applies for _____ **membership**
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For Corporation Membership, ACI representative will be _____

_____ _____
(Date of graduation if Student) (Name, if Corporation)

Signature _____

For our records, please complete both sides of application.

EXCERPTS FROM BYLAWS: ARTICLE I—MEMBERS

Section 1. This Institute shall consist of Members, Corporation Members, Contributing Members, Junior Members, Student Members and Honorary Members interested in furthering the Institute's objects as set forth in its Charter.

Sec. 2. A Member shall be an individual.

A Corporation Member shall be a firm, corporation, society, agency of government or other organization. A Corporation Member shall name one individual as its representative who will enjoy all membership rights and privileges.

A Contributing Member shall be an individual, firm, corporation, society, agency of government or other organization wishing to give larger support to Institute activities through the payment of larger dues. Contributing Members, other than individuals, shall name representatives as do Corporation Members.

A Junior Member shall be a person less than 28 years old.

A Student Member shall be less than 28 years old and a student in residence at a recognized technical or engineering school.

An Honorary Member shall be a person of eminence in the field of the Institute's interest, or one who has performed extraordinarily meritorious service to the Institute.

Sec. 3. All classes of Members except Honorary Members and Student Members, shall be proposed by at least one Member of the Institute and elected by a two-thirds vote of the Board of Direction. An Honorary Member shall be elected by unanimous vote of the Board of Direction. A Student Member shall be proposed by a member of his school's faculty, who need not be a Member of the Institute, and elected by a two-thirds vote of the Board of Direction.

Sec. 4. All Members shall have all rights and privileges of membership as determined by the Board of Direction except that a Junior or Student Member shall not vote nor hold office. The status of a Student Member shall change automatically to that of Junior Member on the first anniversay of his membership succeeding the date on which he ceases to be a student in residence. The status of a Junior Member shall be changed to that of Member on the first anniversary of his membership after he becomes 28 years of age.

Sec. 5. Applications for and resignations from Membership and requests for change of representatives of Corporation or Contributing Memberships shall be presented in writing to the Secretary-Treasurer. Resignations may be accepted only from Members whose dues are not more than 60 days in arrears, except by special action of the Board of Direction.

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Name _____
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Month Day Year

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Name of Firm or Organization _____

☐ **Business Address** _____

☐ **Resident Address** _____
(Please check address to which you wish mail and publications sent)

Nature of Firm's Business _____

Masonry wall reinforcing

Adrian Peerless, Inc., manufacturer of Wal-Lok horizontal mortar joint reinforcing for masonry walls, has announced that the cross bars of the mesh will now be galvanized for positive protection against rust. However, galvanizing is applied only to the section exposed to the air when Wal-Lok is used as a wall tie or as wall reinforcing. Deformed and knurled stretcher rods and those portions of cross bars embedded in mortar are still bare steel for maximum bonding qualities.—Adrian Peerless, Inc., 1428 Grace St., Adrian, Mich.

Septic tank molds

Norwalk Vault Co. is manufacturing steel molds for casting rectangular concrete septic tanks; the inside core mold is in one piece. Molds are available for 300- to 1200-gal. tanks in two styles, a one-piece and two-piece model with venting and cleaning facilitated by large vents and removable inspection covers built into the top of the tank and with baffles or tee tiles as required by local regulations.—Norwalk Vault Co., Norwalk, Ohio

Laying concrete pressure pipe

A concrete pipe-laying instruction manual, "Concrete Pressure Pipe Laying Instructions," has been published by Price Brothers Co. The 16-page booklet contains data on various sized pipe, and tells how to dig the trench, how to handle the pipe, easy steps in making the joint, and how to bed the pipe. A check list of equipment and supplies needed for the job is included.—Price Brothers Co., 1932 East Monument Ave., Dayton 1, Ohio

Water meter for concrete plants

The new 3-in. Neptune Auto-Stop meter is said to give accurate automatic control of water in ready-mix and block batches for water delivery rates up to 300 gal. per min. Closely controlled by the "double-trip" register and valve, the meter features a cushioned stop that slows down the rapid flow of water an instant before it trips shut, thereby permitting accurate cut-off with no water-hammer.

To operate, the tripping mechanism is first set by pushing the buttons on the register until the number of gallons required by the mix shows up on the setting wheels above the buttons. The register is then cleared back to zero by turning the reset handle and the valve is opened. A counter on the face of the meter keeps pace with the flow, and the flow is automatically cut off when the exact quantity of water is delivered.—Neptune Meter Co., 50 West 50th St., New York 20, N. Y.

Masonry paint

Colorsol, a masonry paint developed by Martin-Senour paint company, covers stucco, concrete, and brick in a selection of 144 colors, varying from deep tones to bright pastels. It is said to be alkali resistant and to retain selected color under extreme weather conditions.—Martin-Senour Co., 2520 South Quarry St., Chicago, Ill.

Foamed concrete

Some typical test results of foamed lightweight concrete mixes are listed on a data sheet published by Foam-Crete Inc. Density of the concretes listed varies from 28 to 77 lb per cu ft. The preformed foam is produced by forcing a mixture of water and Foam-Crete liquid from a pre-mix tank through a special nozzle by air pressure.—Foam-Crete Inc., 634 Connell Building Scranton 3, Pa.

Fire protection manual

The 11th edition of the *NFPA Handbook of Fire Protection* has been published by the National Fire Protection Assn. Automatic spray sprinklers, developed since the last edition in 1948, are fully described. The chapter on water spray has been rewritten, and tables of flammable liquids and hazardous chemicals have been revised. New tables are included on fire resistance ratings of walls, floors, roofs, and columns. The 1656-pp. book costs $10.50.—National Fire Protection Assn., 60 Batterymarch St., Boston 10, Mass.

Block splitting machine

Fleming Manufacturing Co. has introduced a block splitting machine capable of accommodating block 24 in. wide and 8 in. high at the rate of 840 cycles or cutting strokes an hour.

The cutting head is controlled by two cams mounted on shafts. Variable height control is achieved through the use of two $1\frac{3}{4}$ in. steel guide shafts. The unit is powered by a three-phase, 60-cycle, gear-in-head motor with a 38 to 1 reduction. Additional reduction in the ratio of 3.2 to 1 is obtained by a chain and sprocket assembly.—Fleming Manufacturing Co., 800 Fleming Ave., Cuba, Mo.

Calcium chloride in concrete

A 10-page booklet, "Better Concrete Faster," has been released by Dow Chemical Co. on the use of calcium chloride in concrete construction.—Inorganic Sales Dept., The Dow Chemical Co., Midland, Mich.

Chute adjustment on transit-mix trucks

Automatic adjustment of the discharge chute of truck transit-mixers is provided by the Monarch Dyna-Chute electric hydraulic power control. One-man, one-lever operation raises, lowers, or holds the chute. Available for 6- or 12-volt systems, the Dyna-Chute combines the pump, motor, valve, oil reservoir, and solenoid in one unit. Also included in the kit is a 15-ft insulated battery cable, hydraulic ram, flexible hose, and fittings. The controls are protected by a steel hood.—Monarch Road Machinery Co., 1331 Michigan St., NE, Grand Rapids 6, Mich.

Expansion joint filler

A British-designed expansion joint material, Durajoint, is now being marketed in this country. It is made of a thermoplastic material. It is said to be chemically inert and resistant to hardening and aging under conditions of extreme exposure to heat and cold. Durajoint is supplied in 50-ft coils in widths varying from 2½ to 9 in. Longitudinal ridges and a hollow core are said to permit the joint material to accommodate itself to extreme extension and distortion.—R. H. Hopkins Sales Co., 2110 Farrington St., Dallas 7, Texas

Power trowel

A gasoline-powered trowel, the Master Midget power trowel, has been marketed by Master Vibrator Co. A 1.6-hp Briggs and Stratton engine drives three swept-back blades. Blades adjust easily for floating, sweat, smooth, or hard trowel finishes. The unit weighs about 70 lb and is 24 in. in diameter.—Master Vibrator Co., 461 Stanley Ave., Dayton 1, Ohio

Prestressed construction

A pamphlet issued by Preload Co., Inc., describes the firm's licensing program for prestressed construction. Types of prestressed construction covered include tanks, domes, pipe, roof slabs, and panels, linear members, cast-in-place structures, and pavements.—The Preload Co., Inc., 211 East 37th St., New York 16, N. Y.

Fire test on roof deck insulated with perlite concrete

A steel roof deck insulated with lightweight perlite concrete successfully withstood 45 min of continuous fire exposure at temperatures up to 1700 F in recent tests.

At the end of the fire test, which followed the standard ASTM time-temperature curve, maximum air temperature 12 in. below the deck was 1700 F. The steel deck itself registered an average of 1500 F, but the top of the roof was only 200 F. Examination of the deck after the test showed that the perlite concrete had separated from the corrugated metal as a result of the intense heat. This would indicate that if some sections of the metal decking were to buckle during fire exposure, the wire-reinforced concrete would be likely to stay in place and bridge the gap, thus preventing flames from reaching roofing materials on top of the concrete. Under a 190-lb point load, the total average deflection of deck and purlins at midspan was 5/64 in.

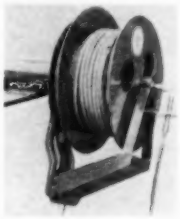
The test covered a one-story building 25 ft long and 10 ft wide and simulated a typical industrial plant roof. It consisted of 24-gage corrugated steel placed on 6 ft 3 in. spans and covered with an insulating fill of perlite concrete (1:6 mix) to a depth of 2 in. above the ridge of the corrugations. The concrete was reinforced with minimal mesh reinforcement to prevent shrinkage and temperature cracking. The roofing was four-ply built-up tar and gravel. This deck had an over-all U factor of less than 0.20.

Recent insurance reports on plant fires have cited combustible elements in insulated roof construction as a cause of the spread of fires which might otherwise have been localized. Therefore, no combustible vapor seal was used between the steel deck and the insulation. The monolithic cast-in-place perlite concrete slab eliminated multiple joints in the insulation and prevented the dripping of molten tar from the roof surface.

The test was sponsored by Granco Steel Products Co. and the Perlite Institute.—Perlite Institute, 10 East 40th St., New York 16, N. Y.

Combination tagline for concrete buckets

A combination hose reel and tagline for concrete buckets has been introduced by McCaffrey-Ruddock Tagline Corp. The combination claims to eliminate the necessity of having a man stand by on the ground to recharge the storage tank which actuates the air or hydraulic operated cylinder on the bucket. The Rud-O-Matic combination hose reel and tagline steadies the concrete bucket at any angle of the boom while paying in and out the air hose.—McCaffrey-Ruddock Tagline Corp., 2131 East 25th St., Los Angeles 11, Calif.



Compression tester

Two bulletins issued by Forney's Inc. describe concrete testing machines. The QC-125-S and QC-100-S are designed for mounting in a truck or station wagon for on-the-job testing. The laboratory models, LT-500, QC-200, QC-125, and QC-100, are described in Bulletin No. 504.—Forney's Inc., 209 Elm St., New Castle, Pa.

Portable air heater

A portable air heater that can be converted from electric motor to gasoline engine power has been developed by American Air Filter Co., Inc. A special conversion kit allows changing the prime mover depending on job site conditions. The heater, called the Herman Nelson utility model, is optionally oil-fired or gasoline-fired. From 75,000 to 425,000 Btu can be supplied by the heater.—Herman Nelson Division, American Air Filter Co., Inc., Moline, Ill.

Concrete mixer

A specification sheet, Bulletin No. 1240-84, for the Blue Brute 6-S concrete mixer has been issued by Worthington Corp. The bulletin gives condensed specifications of the mixer, as well as standard and optional equipment.—Worthington Corp., Harrison, N. J.

Technological research and construction

A booklet entitled "Technological Research and Construction Markets," published by the Chamber of Commerce of the United States, tells how important research is for the building industry and relates the part that the Building Research Advisory Board and the Building Research Institute of the National Research Council have performed in building research.—Chamber of Commerce of the United States, 1615 H St., NW, Washington 6, D. C., or Building Research Institute, 2101 Constitution Ave., NW, Washington 25, D.C.

Lightweight concrete handbook

Perlite Division of Great Lakes Carbon Corp. has published a 218-page handbook on lightweight insulating concrete for roof deck construction entitled "Permalite Concrete Roof Deck Specification Manual." It is divided into two sections, structural and nonstructional; six basic types of roof structural forms are covered. Drawings give construction details, and tables cover all basic roof types on different joist spacings with six different types of ceilings. These tables give slab thickness required with different Permalite concrete mixes, the strengths, and the K or U factors for the whole roof-ceiling combination. Other tables give physical properties, densities, compressive and indentation strengths, K and U factors for different mixes.—Great Lakes Carbon Corp., Perlite Division, 612 S. Flower St., Los Angeles 17, Calif.

Field curing of test cylinders

An inexpensive piece of equipment for field curing of concrete test cylinders, the Acme curing can, has been developed by E. W. Zimmerman. The container, with liner, functions a great deal like a thermos jug. It is said to provide controlled humidity and temperature for the proper curing of cylinders regardless of weather conditions.—E. W. Zimmerman, 228 N. La Salle St., Chicago, Ill.

Troweling machine

Whiteman Manufacturing Co. has announced production of a small-size finishing machine, the Model M. The machine weighs 91 lb and has a 29½-in. trowel diameter. It is powered with a 1½-hp Continental AU-7 engine. It utilizes 6 x 13-in. single trowels for both floating and finishing.—Whiteman Manufacturing Co., 3249 Casitas Ave., Los Angeles 39, Calif.

Masonry paint

A resin-base chemical is employed to provide bond and water impermeability in a masonry paint, Ideal Masonry Coat, developed by Ideal Chemical Products, Inc. It is said to be easy to apply, and dries within 2 to 4 hr after application.—Ideal Chemical Products, Inc., 3813 Hoke Ave., Culver City, Calif.

DISCUSSION

Discussion closes January 1, 1955

Sept. Jl. '54

Specification for the Design and Construction of Reinforced Concrete Chimneys (ACI 505-54)—ACI Committee 505

Recommended Practice for Selecting Proportions for Concrete (ACI 613-54)—ACI Committee 613

Properties of Heavy Concrete Made with Barite Aggregates—L. P. Witte and J. E. Backstrom

One-Piece Reinforced Plastic Forms for Assembly Line Production of Thin-Shell Concrete Roof Sections—George P. Duecy and John L. Hutsell

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Oct. Jl. '54

Admixtures for Concrete—ACI Committee 212

Precast Concrete Sandwich Panels for Tilt-Up Construction—F. Thomas Collins

Production of Sand and Gravel—Stanton Walker

Ultimate Strength in Shear of Simply-Supported Prestressed Concrete Beams Without Web Reinforcement—E. M. Zwoyer and C. P. Siess

Discussion closes March 1, 1955

Nov. Jl. '54

Model Analysis of a Skewed Rigid Frame Bridge and Slab—D. H. Pletta and D. Frederick

Fundamental Factors in the Drying Shrinkage of Concrete Block—George L. Kalousek

Test Hammer Provides New Method of Evaluating Hardened Concrete—Gordon W. Greene

Ultimate Load Theory and Tests of Cylindrical Long Shell Roofs—G. C. Ernst, R. R. Marlette, and G. V. Berg

"Accidental" Air in Concrete—M. F. Macnaughton and John B. Herbich

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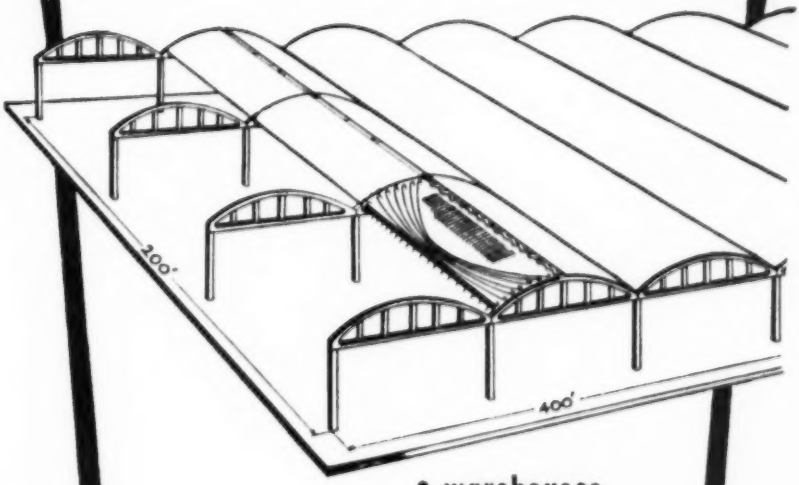

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- Construction of Concrete Farm Silos (ACI 714-46)
- Winter Concreting Methods (ACI 604-48)
- Application of Cement Paint to Concrete Surfaces (ACI 616-49)
- Application of Mortar by Pneumatic Pressure (ACI 805-51)

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